

DEPARTMENT of ENVIRONMENTAL SERVICES
Water Division - Watershed Management Bureau

LAKE TROPHIC DATA

MORPHOMETRIC:

Lake: OTTER LAKE	Lake Area (ha):	24.77
Town: GREENFIELD	Maximum depth (m):	4.6
County: Hillsborough	Mean depth (m):	2.8
River Basin: Merrimack	Volume (m ³):	704000
Latitude: 42°57'36" N	Relative depth:	0.8
Longitude: 71°53'53" W	Shore configuration:	1.64
Elevation (ft): 803	Areal water load (m/yr):	14.08
Shore length (m): 2900	Flushing rate (yr ⁻¹):	5.00
Watershed area (ha): 725.2	P retention coeff.:	0.51
% watershed ponded: 1.8	Lake type:	natural

BIOLOGICAL:

		9 February 1999	2 July 1998
DOM. PHYTOPLANKTON (% TOTAL)	#1	NO WINTER PLANKTON	CHRYOSOPHAERELLA 50%
	#2	ANALYZED	SYNEDRA 20%
	#3		DINOBYRON 10%
PHYTOPLANKTON ABUNDANCE (units/mL)			
CHLOROPHYLL-A (µg/L)			3.84
DOM. ZOOPLANKTON (% TOTAL)	#1		KERATELLA 35%
	#2		NAUPLIUS LARVA 18%
	#3		
ROTIFERS/LITER			226
MICROCRUSTACEA/LITER			121
ZOOPLANKTON ABUNDANCE (#/L)			357
VASCULAR PLANT ABUNDANCE			Scat/Common
SECCHI DISK TRANSPARENCY (m)			2.7
BOTTOM DISSOLVED OXYGEN (mg/L)		12.0	2.0
BACTERIA (E. coli, #/100 ml)	#1		
	#2		
	#3		

SUMMER THERMAL STRATIFICATION:

stratified

Depth of thermocline (m): 2.6
Hypolimnion volume (m³) : 52400
Anoxic volume (m³) : None

CHEMICAL:		Lake: OTTER LAKE Town: GREENFIELD			
	9 February 1999		2 July 1998		
DEPTH (m)	1.0	2.0	1.0		3.0
pH (units)	6.4	6.4	6.6		6.4
A.N.C. (Alkalinity)	6.9	8.2	6.0		6.0
NITRATE NITROGEN	0.25	0.09	< 0.05		< 0.05
TOTAL KJELDAHL NITROGEN	0.30	0.30	0.30		0.30
TOTAL PHOSPHORUS	0.006	0.006	0.009		0.012
CONDUCTIVITY (μ mhos/cm)	107.6	119.5	86.8		88.4
APPARENT COLOR (cpu)	16	17	24		32
MAGNESIUM			0.79		
CALCIUM			4.1		
SODIUM			11.0		
POTASSIUM			0.69		
CHLORIDE	25	28	18		18
SULFATE	4	4	3		3
TN : TP	92	65	33		25
CALCITE SATURATION INDEX			3.3		
All results in mg/L unless indicated otherwise					
TROPHIC CLASSIFICATION: 1998					
	D.O.	S.D.	PLANT	CHL	TOTAL CLASS
	1	3	2	0	6 Oligo.
COMMENTS:					
<ol style="list-style-type: none"> 1. Trolling speed only. 2. Otter Lake was previously surveyed and classified in 1980. There was no change in trophic class and little change in trophic quality between the two dates - although phosphorus levels were much less in 1998 (the 1980 values of 0.033 and 0.053 mg/L are unexplainably high given the oligotrophic nature of the lake). 3. The lake has participated in VLAP (volunteer monitoring program) since 1996 with relatively stable but a hint of worsening trends in trophic quality over that short time period. Additional years of monitoring are needed to discern trends. 4. Conductivity, sodium and chloride levels suggest some road salt runoff but not excessive. 					

Otter Lake

Greenfield



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5

10

10

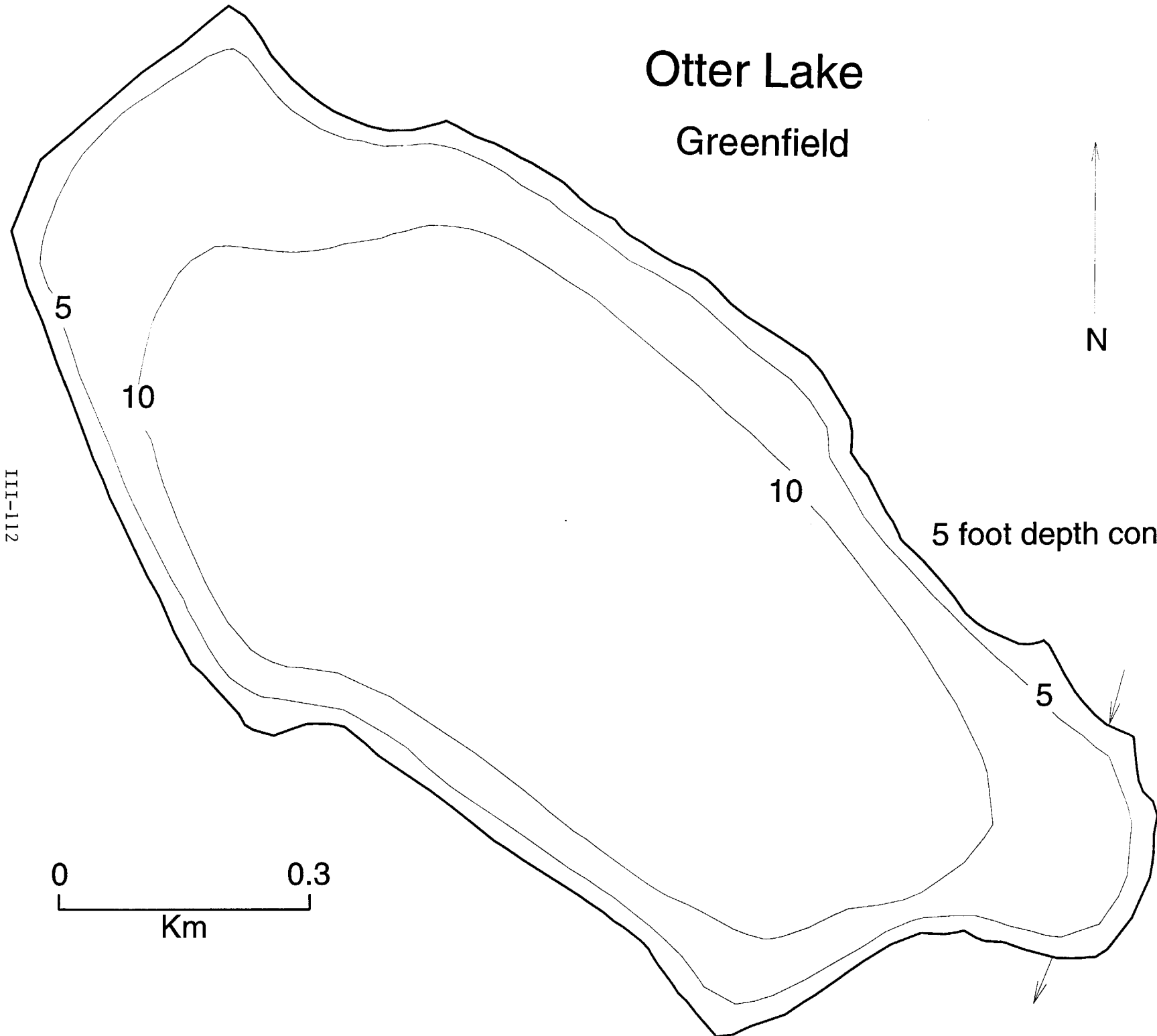
5 foot depth contours

5

0

0.3

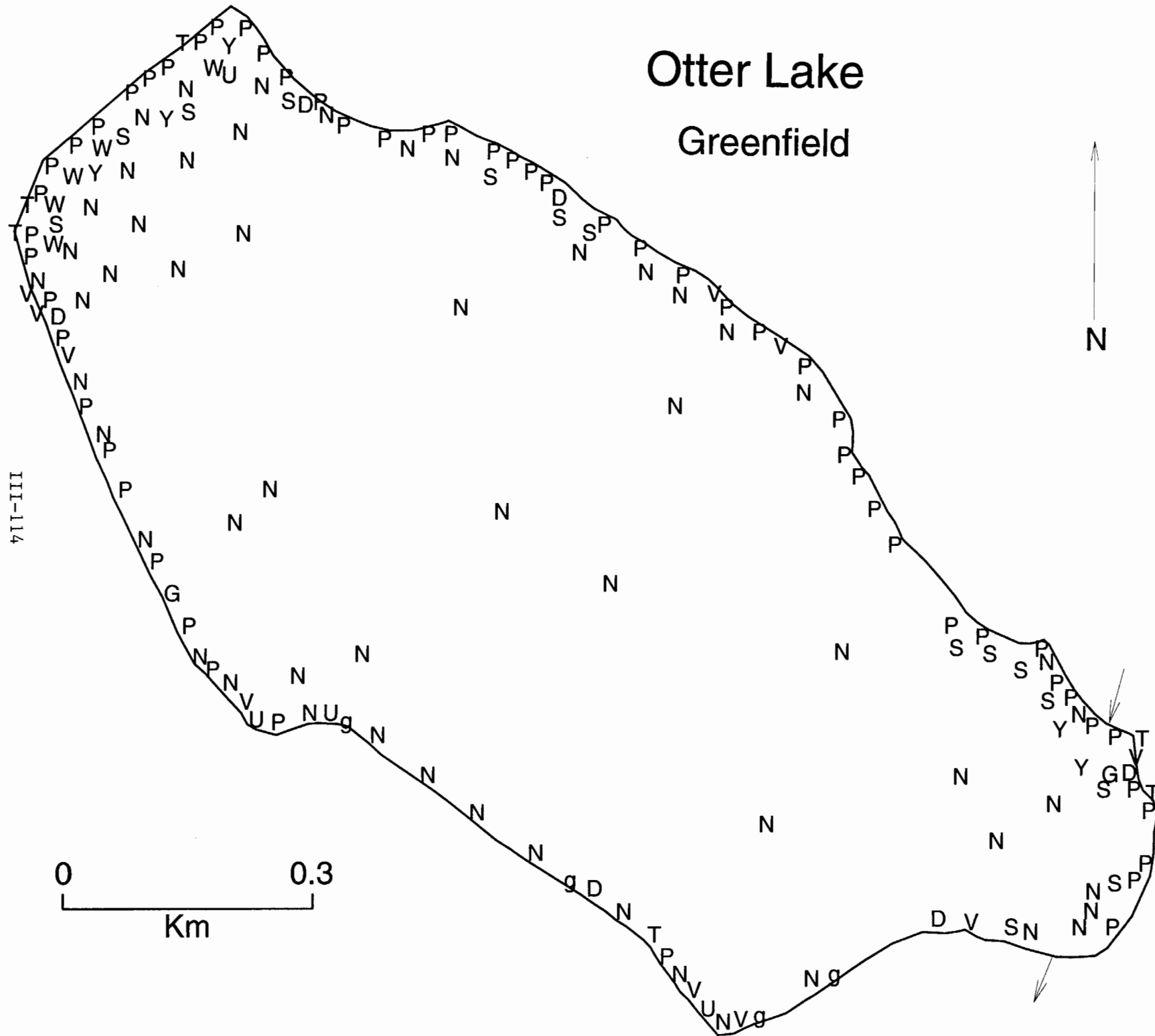
Km



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